

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number  
**WO 2005/002798 A1**

(51) International Patent Classification<sup>7</sup>: **B25B 23/14**  
// B23P 15/06, G01L 5/24

Tyresö (SE). **HELLMARK, Bo, Lennart** [SE/SE]; S:t  
Göransgatan 74, S-112 38 Stockholm (SE).

(21) International Application Number:  
PCT/SE2004/001100

(74) Agent: **PANTZAR, Tord**; Atlas Copco Tools AB, S-105  
23 Stockholm (SE).

(22) International Filing Date: 6 July 2004 (06.07.2004)

(81) Designated States (*unless otherwise indicated, for every  
kind of national protection available*): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0301984-1 7 July 2003 (07.07.2003) SE

(71) Applicant (*for all designated States except US*): **ATLAS  
COPCO TOOLS AB** [SE/SE]; S-105 23 Stockholm (SE).

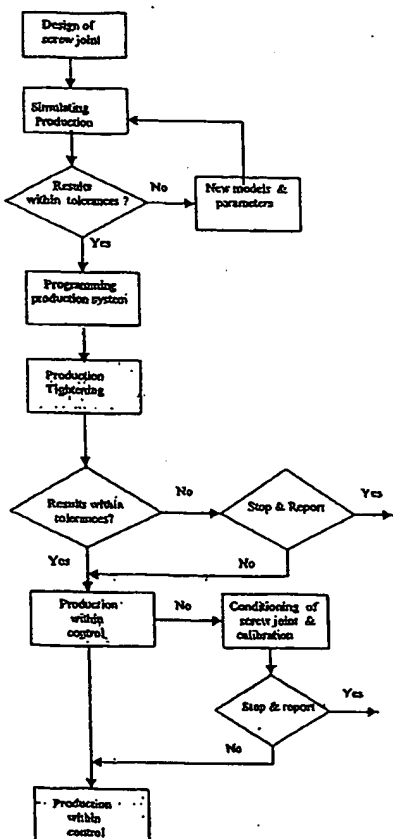
(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **CARLIN,  
Carl-Gustaf** [SE/SE]; Flåhacbacken 60, S-135 33

(84) Designated States (*unless otherwise indicated, for every  
kind of regional protection available*): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: METHOD FOR QUALITY ASSURANCE OF SCREW JOINT TIGHTENING



(57) Abstract: A method for quality assurance of screw joint tightening results when tightening a screw joint to a needed pretension condition ( $F_N$ ) by means of a torque delivering power tool, wherein one or more simulation procedures of a screw joint tightening process via a specific algorithm aiming at the needed pretension condition ( $F_N$ ) by using programmed data relating to the screw joint geometry, expected frictional conditions, power tool characteristics, a tightening strategy and suitable tightening parameter values, thereby arriving at a simulated pretension condition ( $F_S$ ) which is compared to the resultant pretension condition ( $F_P$ ) of a practically performed tightening process performed via the same specific algorithm, and evaluating the outcome of the comparison for quality acceptance or refusal.

WO 2005/002798 A1

5/6

WO 2005/002798 A1



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

— before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.